COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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MODIFIED CERTIFICATION FOR GENERAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Geoflow Inc.
506 Tamal Plaza
Corte Madera, CA 94925

Trade name of technology and model number: Geoflow WASTEFLOW® Classic WF16-4-24; WF16-4-12; WF-Special Order; and Geoflow WASTEFLOW® PC WFPC16-4-24; WFPC16-4-12; WFPC16-4-6; WFPC16-2-24; WFPC16-2-12; WFPC16-2-6; and WFPC-Special Order Subsurface Disposal System (hereinafter the "System"). Schematic drawings of typical Systems, a Design Manual and a technology checklist are attached and are a part of this Approval

Transmittal Number:	W066937
Date of Issuance:	December 11, 2006, August 21, 2007
Expiration Date:	December 11, 2011

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Certification for General Use to: Geoflow Inc., 506 Tamal Plaza, Corte Madera, CA 94925, (Hereinafter "the Company"), certifying the System described herein for General Use in Commonwealth of Massachusetts. Sale and use of the System are conditioned on and subject to compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

Glenn Haas, Acting Assistant Commissioner
Bureau of Resource Protection

August 21, 2007
Date

I. Purpose

1. The purpose of this Certification is to allow the use of the System in Massachusetts on a General Use basis.

2. With the necessary permits and approvals required by 310 CMR 15.000, this Certification authorizes the use of the System in Massachusetts.

3. The System may be installed on all facilities where a system in compliance with 310 CMR 15.000 exists on site or could be built and for which a site evaluation in compliance with 310 CMR 15.000 has been approved by the local approving authority; or by MassDEP if MassDEP approval is required by 310 CMR 15.000. The System is used to dispose of wastewater from an alternative system approved in accordance with 310 CMR 15.280 through 15.289 with effluent discharge concentrations that meet or exceed secondary treatment standards of 30 mg/L biochemical oxygen demand (BOD_5) and 30 mg/L total suspended solids (TSS).

4. The System is approved for use at facilities with a maximum design flow less than 10,000 gallons per day (GPD).

II. Design Standards

1. The system, a subsurface drip distribution technology, is equivalent to a pressure Distribution system designed in accordance with the Department's Pressure Distribution Guidance. In the event of a conflict between terms and conditions of this System's technology approval and Title 5, this approval shall control.

2. The System is a pressure distributed subsurface wastewater drip dispersal (disposal) system that replaces a soil absorption system (SAS) designed in accordance with 310 CMR 15.000. The System is designed to distribute effluent from an alternative treatment system and discharge it at a depth of 6 to10 inches below the finished ground surface; it includes a pump chamber, a filter module/hydraulic unit and drip dispersal zone(s). The dispersal zone consists of small diameter flexible polyethylene tubing, extruded with an inner lining of an anti-microbial agent to prevent bacterial growth the tubing. The flexible polyethylene dripline has turbulent flow emitters regularly spaced inside the line, (typically 12 or 24 inches apart). The System can be designed with either Classic turbulent flow emitters or with Pressure Compensating (PC) emitters. The tubing is pressure dosed and shall be designed to drain into the soil upon completion of the pump cycle. The manifolds are sloped back to drain to the pressure-dosing chamber (pump chamber). The System has two manifolds or headers; one to feed and the other to flush the dispersal system, vents at the end of each header pipe, a field flush valve and a spin filter with stainless steel 100 micron/150 mesh screen.

3. The System may be installed in the A, B or C soil horizon at a depth of at least 6 inches below the finished grade, or in fill material meeting the specifications at 310 CMR 15.255(3).

4. All access ports and manhole covers shall be installed and maintained at grade to allow for maintenance of the System.

5. The control panel including alarms and controls shall be mounted in a location always accessible to the System operator.

6. The System may be installed in soils with a percolation rate of up to 60 minutes per inch (MPI). The System shall not be installed in Class IV soils as defined in 310 CMR 15.243.

7. Effluent loading rates shall be as specified in 310 CMR 15.242.

8. Systems shall not be designed and constructed with less than 400 linear feet of drip tubing with a minimum spacing of 12 inches.

9. The System is equivalent to a pressure distribution system designed in accordance with the Department's Pressure Distribution Guidance.

10. The System does not require a five foot over dig as indicated at 310 CMR 15.255(5).

11. The System shall includes the following:

    i. A pump chamber and pump(s) capable of providing pressure of 10-45 psi throughout the dispersal zone(s). Each drip dispersal zone shall be dosed a minimum of six times per day, or as recommended by the Company. The field pressure shall be controlled using a pressure regulator or manual valves to achieve design pressure (10-45 psi). Duplex pumping shall be provided for facilities with design flows of 2000 GPD or greater. The pump chamber, combined with available storage in the pretreatment units, shall provide at least one-day storage as required by 310 CMR 15.231.

    ii. Timed dosing for the drip system with a timer controller capable of operating the system during peak flow events without high-level alarms.

    iii. A self-cleaning filter with a minimum 100 micron / 150-mesh size screen installed prior to the discharge of effluent to the drip tubing. The filter shall be provided with a flush valve on the debris end; a ball with a constant bleed or a solenoid valve that can be activated by the timer.

    iv. Air vacuum breakers at each high point of the drip header distribution system and on the drip line when the drip line is installed at a higher elevation than

the headers. They shall be accessible from finished grade and insulated to protect from freezing.

v. Wastewater Classic or Wasteflow PC drip tubing lines spaced 24 inches apart with drip tubing emitters spaced 24 inches on center. When smaller spacing is used the dispersal field shall still be sized based on the minimum 24-inch spacing. When tubing line spacing is greater than 24 inches by 24 inches, the size of the dispersal field shall be increased so that the number of emitters is equal to the number that would have been installed in the standard 24 inch by 24-inch scenario. Drip tubing lines installed as level as possible on contour and at least 6 inches below finished grade. More than the minimum length of tubing may be utilized within a properly sized SAS. The drip dispersal tubing shall be automatically forward flushed after a pre-programmed number of dosing cycles as determined by the Company. All drip line flush water shall be conveyed back to a settling tank or to a septic tank.

vi. An effective effluent dispersal area calculated using the total area of the drip tubing system including a one-foot addition on each side or two square feet per foot of drip tube when tubing is spaced two feet apart. No sidewall credit shall be given for this System.

12. The dispersal area shall not be installed under a paved surface.

13. No change in existing surface slope over the dispersal field is required to comply with 310 CMR 15.240(10).

14. All System control units, valve boxes, drip dispersal lines, conveyance lines and other System appurtenances shall be designed and installed to prevent freezing per the Company's recommendations.

15. The System designer shall provide plans and specifications for all proposed System installations according to 310 CMR 15.220 for submittal to the approving authority that include required standard details and installation instructions.

16. Drip tubing may be installed with a vibratory plow, a static plow, a narrow trencher (<6" width), by hand trenching, or by scarifying the surface and bedding the drip tubing in clean sand meeting the requirements for fill material in Title 5 at 310 CMR 15.255(3) with cover consisting of sand and topsoil meeting the 6 to 12 inch depth requirement. Vegetative cover must be replaced for installations where it is removed or buried during installation.

17. Drip tubing shall not be installed when soils are frozen or saturated.

18. Prior to System start up, a clean water test of the System shall be performed in the presence of the Company's representative and the approving authority to check for leaks and to ascertain and verify system design flush and dose rates.

19. System unit malfunction and high water alarms shall each be connected to an independent power source from the operating pump(s) run from the main power source of the facility.

20. For Systems with a design flow of 2,000 GPD or greater, the System shall be equipped to provide a flow meter and automatic remote telemetric notification to the operation and maintenance (O&M) provider.

III. General Conditions

1. All provisions of 310 CMR 15.000 are applicable to the use of the System, except those that specifically have been varied by the terms of this Certification.

2. All sample analyses must be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It is a violation of this Approval to falsify any data collected, to omit any required data or to fail to submit any report required by such plan.

3. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.

4. In accordance with applicable law, the Department and the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as it deems necessary to protect public health, safety, welfare or the environment.

5. The Department has not determined that the performance of the System will provide a level of protection to the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed, and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004.

6. Design, installation and use of the System shall be in strict conformance with the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to this Certification.

IV. Conditions Applicable to the System Owner

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the system and shall be lawfully disposed.

2. **New Construction less than 2000 GPD:** For residential Systems with a design flow less than 2000 GPD, to be installed following an I/A system with Certification for General Use for a reduced SAS; the System owner initially shall size the SAS in accordance with 310 CMR 15.242 to demonstrate that a conventional Title 5 SAS, including a reserve area, can be installed on the site. The System owner can then reduce the size of the drip dispersal SAS as allowed by the treatment technology Certification. No additional reduction in sizing based on innovative technology shall be taken. The total area required in the initial sizing, which must include the area designated for the System and the primary and reserve area, shall be preserved and the System owner shall ensure that no permanent structures, excluding the System and reduced SAS, or other structures are constructed on that area and that the area is not disturbed in any manner that will render it unusable for future installation of a conventional Title 5 SAS.

3. Effluent discharge concentrations from the treatment unit that discharges to the System shall meet or exceed secondary treatment standards of 30 mg/L BOD_5 and 30 mg/L TSS. The effluent pH shall not be less than 6.0 or more than 9.0 unless approved by the Department.

4. Operation and Maintenance Agreement:

   A. Throughout its life, the System owner shall operate and maintain the System in accordance with this Approval, the designer's operation and maintenance requirements, and the Company's approved procedures and sampling protocol. To ensure proper operation and maintenance (O&M), the System owner shall enter into an O&M agreement. No O&M agreement shall be for less than one year.

   B. No System shall be used until an O&M agreement is submitted to the approving authority which:

      i. Provides for the contracting of a person or firm competent in providing services, trained by the Company as provided in Section V (6), to operate the System consistent with the System's specifications and the operation and maintenance requirements specified by the designer and any specified by the Department;
      ii. Contains procedures for notification to the Department and the local board of health within five days of a System failure or alarm event and for corrective measures to be taken immediately;

iii. Provides the name of an operator, which must be a Massachusetts certified operator if one is required by 257 CMR 2.00, that will operate and monitor the System.

iv. For residential Systems installed with a reduced SAS the operator must inspect, field test and maintain the System at least every six months in accordance with the Departments policy and anytime there is an alarm event. For residential Systems installed with a standard sized SAS, the inspections and field testing shall be conducted at least once per year.

v. For all other Systems the operator must inspect, field test and maintain the System at least every three months and anytime there is an alarm event.

5. The System owner shall at all times have the System properly operated and maintained in accordance with this Certification, the designer's operation and maintenance requirements and the Company's approved procedures. The System owner shall notify the Department and the local approving authority, in writing, within seven days of a change in the operator.

6. The System owner shall provide a copy of this Certification, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to the proposed new owner.

7. The System owner shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.

8. By September 30th of each year, the System owner shall submit to the Department and the local approving authority an O&M checklist and a technology checklist, completed by the System operator for each inspection performed during the previous 12 months. Copies of the checklists are attached to this Certification.

V. Conditions Applicable to the Company

1. By January 31st of each year, the Company shall submit to the Department a report, signed by a corporate officer, general partner, or Company owner that contains information on the System for the previous calendar year. The report shall state: the number of units of the System sold for use in Massachusetts during the reporting year; and for all systems installed since the first issuance of Certification for the System, all known failures, malfunctions, and corrective actions taken and the address of each such event.

2. The Company shall notify the Department's Director of Watershed Permitting at least 30 days in advance of any proposed transfer of ownership of the technology for which this Certification is issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this

Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

3. The Company shall develop and submit to the Department within 60 days of this Certification: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System; a maintenance checklist; and recommended schedule for maintenance of the System consistent with the Department's requirements essential to consistent successful performance of the installed Systems.

4. The Company shall develop and submit to the Department a standard protocol essential for consistent and accurate measurement of performance of installed Systems, including procedures for sample collection, if necessary and analysis of the System within 60 days of the effective date of this Approval. The protocol shall be in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.

5. The Company shall make available, in print and electronic format, the referenced procedures and protocol in paragraphs 3 and 4 above to owners, operators, designers and installers of the System.

6. The Company shall institute and maintain a program of designer and operator training and continuing education, as approved by the Department. The Company shall maintain and annually update, and make available the list of qualified operators by January 31ST and make the list known to local approving authorities, the Department and to users of the technology.

7. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the receipt of that request.

8. The Company shall include copies of this Certification and the procedures described in Section V (3) and (4) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures described in Section V (3) and (4).

9. The Company or its designee shall conduct an intended use review of the System prior to the sale of any nonresidential unit or any System over 2,000 GPD to ensure that the proposed use of the System is consistent with the unit's capabilities.

10. If the Company wishes to continue this Certification after its expiration date, the Company shall apply for and obtain a renewal of this Certification. The Company shall submit a renewal application at least 180 days before the expiration date of this Certification, unless the Department has granted permission for a later date in writing.

VI. Reporting

1. All submittals of notices and documents to the Department required by this Certification shall be submitted to:

   Director
   Wastewater Permitting Program
   Department of Environmental Protection
   One Winter Street - 5th floor
   Boston, Massachusetts 02108

VII. Rights of the Department

1. The Department may suspend, modify or revoke this Certification for cause, including, but not limited to, non-compliance with the terms of this Certification, non-payment of an annual compliance assurance fee, for obtaining the Certification by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Certification, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Certification, the System, the owner, or operator of the System and the Company.

VIII. Expiration Date

1. Notwithstanding the expiration date of this Certification, any System sold and installed prior to the expiration date of this Certification, and approved, installed and maintained in compliance with this Certification (as it may be modified) and 310 CMR 15.000, may remain in use unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.